

In the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-19 (cancelled)

20. (new) Device for measuring the speed and direction of rotation of an object (3), near to which it is placed, said device comprising:

- a magnetic detection device (2) that delivers, in response to a rotation of the object (3) generating a magnetic field variation, signals representative of its speed and its direction of rotation,
- a conductor (4) intended to be connected to a power source to supply current to the magnetic detection device (2) at least,
- current receptor means (6) placed between the magnetic detection device (2) and the conductor (4) that create, from signals coming from the magnetic detection device (2), a modulation of the current ( $I_{out}$ ) flowing in the conductor (4),

wherein,

- the frequency of the modulated current ( $I_{out}$ ) or the number of transitions that it has reflects the speed of the object (3); and
- the form of said modulated current ( $I_{out}$ ) reflects the direction of rotation of said object (3).

21. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 20, wherein the current receptor means (6) comprise at least one series assembly (61, 62) formed of a resistor (R1, R2) and a commutation element (Q5).

22. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 20, wherein the modulated current ( $I_{out}$ ) has a first asymmetric form when

the object turns in one direction and the same form but seen in a mirror when the object (3) turns in the other direction.

23. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 20, wherein the magnetic detection device (2) is a linear sensor delivering two pairs of signals out of phase with each other, said signals being relative to the angular position of the object.
24. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 23, wherein the modulated current ( $I_{out}$ ) has a first asymmetric form when the object turns in one direction and the same form but seen in a mirror when the object (3) turns in the other direction.
25. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 23, wherein the device comprises two comparators (C1, C2), the input of each receiving the signals of a pair, the output of each comparator (C1, C2) being connected to the conductor (4) via a resistor (R1, R2) of a series assembly, the two resistors (R1, R2) having different values.
26. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 24, wherein each comparator (C1, C2) includes a commutation element (Q5) for the current receptor means (6).
27. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 20, wherein the magnetic detection device (2) is a digital sensor delivering a signal representative of the speed and a signal representative of the direction of rotation of the object.
28. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 20, wherein the modulated current ( $I_{out}$ ) has a cyclic ratio greater than a predetermined threshold when the object (3) turns in one direction and a cyclic ratio less than the predetermined threshold when the object (3) turns in the other direction.

29. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 20, wherein the modulated current ( $I_{out}$ ) has a cyclic ratio greater than a predetermined threshold when the object (3) turns in one direction and a cyclic ratio less than the predetermined threshold when the object (3) turns in the other direction, and wherein the device comprises two comparators (C1, C2), the input of each receiving the signals of a pair, means of encoding (50) the direction of rotation of the object, the input of which is connected to the output of the comparators (C1, C2), means of mixing (51), the input of which is connected to the output of the comparators (C1, C2) and to the output of the means of encoding (50), the output of the means of mixing (51) delivering a unique signal (S) reflecting the speed and direction of rotation of the object (3), said unique signal controlling the current receptor means (6).

30. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 29, wherein the means of mixing (51, 83) are formed by a circuit based on logic gates (60 to 65, 800 to 805).

31. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 29, wherein the means of encoding (50) the direction of rotation comprises a switchover D.

32. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 20 wherein the modulated current ( $I_{out}$ ) has a cyclic ratio greater than a predetermined threshold when the object (3) turns in one direction and a cyclic ratio less than the predetermined threshold when the object (3) turns in the other direction, and wherein the device comprises, means of mixing (83), the input of which is connected to the magnetic detection device (80) and the output of which delivers a unique signal (S) reflecting the speed and direction of rotation of the object (3), said unique signal controlling the current receptor means (6).

33. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 32, wherein the means of mixing (51, 83) are formed by a circuit based on logic gates (60 to 65, 800 to 805).

34. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 20, wherein the magnetic detection device (3, 80), the conductor (4) and the current receptor means (6) at least are encapsulated in an enclosure (1) made out of non-magnetic material, the conductor (4) being accessible from the exterior of said enclosure (1).

35. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 34, wherein the enclosure (1) is formed out of metal such as titanium or stainless steel.

36. (new) Device for measuring the speed and direction of rotation of an object (3) according to claim 20, wherein the magnetic detection device (3, 80) is connected to another conductor (5) for its power supply, said other conductor (5) coming into electrical contact with the enclosure (1).

37. (new) Magnetic system for acquiring data in a flow, wherein the system comprises a measuring device according to claim 20, and an object (3) in the form of a non-magnetic propeller (30) integral with at least one magnet (31).

38. (new) Magnetic system for acquiring data according to claim 37, wherein the propeller (30) and the measuring device are in the same line as each other, along the axis of the propeller.